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EXAMINER	
MICHALSKI, JUSTIN I	
ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/658,010	Applicant(s) BHARITKAR ET AL.	
	Examiner Justin Michalski	Art Unit 2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16, 19-27, and 31 is/are rejected.
- 7) ☒ Claim(s) 17, 18 and 28-30 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, filed 3 September 2004, with respect to the rejection(s) of claim(s) 1, 2, 9-12, 15, and 19 under 102(b) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Kimura. The amendment after final has been entered.

Claim Objections

2. Claim 31 objected to because of the following informalities: In line 15 it is unclear as to what "output terminal" is coupled to. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 27 and 31 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. In lines 13 and 14 of claim 27 and lines 10 and 11 of claim 31 "a summing

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circuit having an output signal coupled to the automatic loudness compensation circuit for receiving input from a microphone” is not found in the figures or the specification.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 31 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 31, lines 7-9, it is unclear whether the “filter circuit” in line 8 is comprised in the “automatic loudness compensation circuit” or the “level control” as it can be interpreted either way.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 2, 9-11, 15, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Kimura (US Patent 5,172,358).

Regarding Claim 1, Kimura discloses a method of providing an automatic loudness compensation circuit comprising (Figure 1): receiving an input audio signal with a range of frequencies where a lower portion of the range contains a bass content

(signal to A/D converter); coupling the input audio signal to a voltage detector (level detection 16) having an output voltage (signal from 16 to 12); coupling the output voltage of the voltage detector to a filter circuit (15) for adjusting a corner frequency associated with the filter circuit such that the corner frequency is inversely related to the input audio signal for boosting the bass content of the input audio signal (Kimura discloses corner frequency varies from 20 Hz to 500 Hz (Col 4, line 13) based on level detection means (Col 6, lines 3-6), and coupling an output of the filter (15) circuit to a power amplifier (D/A converter) for amplifying the filter circuit output.

Regarding Claim 2, it is inherent that a speaker would be connected to the output of the D/A converter to provide an audible output.

Regarding Claims 9-11, Kimura discloses playing back music from audio devices such as Compact discs and cassettes (Col 1, lines 26-28).

Regarding Claim 15, Kimura discloses a method of providing an automatic loudness compensation circuit comprising: receiving an input audio signal (Fig. 1, signal to A/D) with a range of frequencies where a lower portion of the range includes a bass content; coupling the input audio signal to a voltage detector (16) to produce an output voltage (signal from 16 to 12); coupling the output voltage of the voltage detector to a control circuit (controller 12, operation key 18, and filter 15), the control circuit comprising a filter circuit (15); comparing a corner frequency associated with the filter circuit to the strength of the input audio signal; shifting the corner frequency such that the corner frequency is inversely related to the strength of the input audio signal (Kimura discloses corner frequency varies from 20 Hz to 500 Hz (Col 4, line 13) based on level

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detection means (Col 6, lines 3-6); coupling an output of the filter circuit to a power amplifier (D/A converter) for amplifying the filter circuit output; and driving an audio speaker with the amplified filter circuit output (it is inherent that the device will have a speaker to produce an audible output).

Regarding Claim 19, Kimura further discloses the amount boost to the bass content of the input signal is proportional to the value of the filter circuit (Column 4, equations 4-6).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 12-14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura.

Regarding Claim 12, Kimura discloses a method as stated apropos of claim 1 but does not disclose the input source being a microphone. However, it is well known in the art and would have been obvious at the time the invention was made to use a microphone for an input to an audio system.

Regarding Claim 13, Kimura further discloses that sound-pressure level may be detected by a [feedback] microphone or the like and the boosting characteristics may be controlled in response to this detected value (Col 4, lines 60-64). Where the output of

the filter circuit (15) and the microphone input audio signal are coupled to a summing circuit (controller 12, through the feedback microphone) having an output signal (output to of filter 15).

Regarding Claim 14, Kimura further discloses the output of the summing circuit (controller 12) is coupled to the power amplifier (D/A converter).

11. Claims 3-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura as applied to claim 1 above, in view of Onetti et al. (Hereinafter "Onetti") (US Patent 5,812,687) and further in view of Dodson et al. (Hereinafter "Dodson") (US Patent 4,179,669).

Regarding Claim 3, Kimura discloses a method as stated apropos of claim 1 above. Kimura does not disclose the use of a capacitance multiplier circuit. Onetti also discloses a circuit for controlling frequency response characteristics of a signal (Figure 8) containing a capacitance multiplier. Onetti further teaches capacitance multiplying circuits are integrated in order to limit the number of components (Col. 2, lines 22-23). Therefore it would have been obvious to one skilled in the art at the time the invention was made to combine the capacitance multiplier circuit as disclosed by Onetti with the method of Kimura to reduce the number of components as taught by Onetti.

Dodson discloses an equalizing system which changes the equalization based on the power of the audio signal through a LED (32). Dodson discloses that the LED allows feedback to be proportional to the amplitude of the signal provided by amplifier 23 (Col. 3, lines 23-27). Therefore, it would have been obvious to one of ordinary skill in

the art at the time the invention was made to include a LED in order to provide a proportional feedback signal to the equalization circuit.

Regarding Claim 4, Kimura further discloses a low pass filter (13).

Regarding Claim 5, Kimura further discloses the corner frequency being between an operating range of 20 Hz to 500 Hz (Col 4, equation 2).

Regarding Claim 6, Kimura discloses the corner frequency of the low pass filter increases when the input audio signal decreases (Kimura discloses corner frequency varies from 20 Hz to 500 Hz (Col 4, line 13-38) based on level detection means (Col 6, lines 3-6).

Regarding Claim 7, Kimura further discloses the amount boost to the bass content of the input audio signal is proportional to the corner frequency of the low pass filter (Col 4, equations 1-6).

Regarding Claim 8, Dodson further discloses the amount of boost proportional to the value of the light sensitive resistor (Col. 3, lines 23-27).

12. Claims 16, 20, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura as applied to claim 15 above, in view of Onetti et al. (Hereinafter "Onetti") (US Patent 5,812,687) and further in view of Dodson et al. (Hereinafter "Dodson") (US Patent 4,179,669).

Regarding Claim 16, Kimura disclose a method as stated apropos of claim 15 above including a low pass filter (15). Kimura does not disclose the use of a capacitance multiplier circuit. Onetti also discloses a circuit for controlling frequency

response characteristics of a signal (Figure 8) containing a capacitance multiplier.

Onetti further teaches capacitance multiplying circuits are integrated in order to limit the number of components (Col. 2, lines 22-23).

Therefore it would have been obvious to one skilled in the art at the time the invention was made to combine the capacitance multiplier circuit as disclosed by Onetti with the method of Kimura to reduce the number of components as taught by Onetti.

Dodson discloses an equalizing system which changes the equalization based on the power of the audio signal through a LED (32). Dodson discloses that the LED allows feedback to be proportional to the amplitude of the signal provided by amplifier 23 (Col. 3, lines 23-27). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a LED in order to provide a proportional feedback signal to the equalization circuit.

Regarding Claim 20, Dodson further discloses the amount of boost proportional to the value of the light sensitive resistor (Col. 3, lines 23-27).

Regarding Claim 21, Dobson discloses the light sensitive resistor is an optocoupled resistor (Fig. 2, led 32 and resistor 25).

13. Claims 22, 23, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura (US Patent 5,172,358) in view of Muterspaugh (US Patent 4,661,851).

Regarding Claim 22, Kimura discloses an automatic loudness compensation circuit (Figure 1) including a terminal coupled to an input audio signal from an external

source (input signal to A/D) and a signal supply having voltage sufficient to drive an output audio speaker comprising (output of D/A): a control circuit (12) including a filter circuit (15) for adjusting a corner frequency associated with the filter circuit such that the corner frequency is inversely related to the input audio signal (Kimura discloses corner frequency varies from 20 Hz to 500 Hz (Col 4, line 13) based on level detection means (Col 6, lines 3-6); a power amplifier (D/A) for increasing the power of the output signal from the filter circuit; and a terminal for providing an amplified output signal (output of D/A). Although Kimura discloses a level detector (16) Kimura does not disclose an R.M.S. detector for providing an R.M.S. voltage from the input audio signal with a range of frequencies where a lower portion of the range includes a bass content.

Muterspaugh discloses an RMS detector (Figure 1, reference 34) which provides a control element for reference 20. It would be known to one in the art that an RMS detector could also be used as a method of detecting voltage level as shown by Muterspaugh. Therefore it would have been obvious to one skilled in the art at the time the invention was made to combine the level detector used by Kimura with a RMS detector disclosed by Muterspaugh in order to obtain an accurate reading of the voltage level.

Regarding Claim 23, Kimura further disclose the control circuit providing a boost to the signal proportional to the corner frequency of the filter circuit (Col. 4, equations 1-6).

Regarding Claim 26, Kimura discloses an automatic loudness compensation circuit (Fig. 1) including a terminal coupled to an input audio signal from an external

source (input to A/D) and a signal supply having voltage sufficient to drive an output audio speaker (D/A) comprising: means for adjusting a corner frequency of a filter circuit such that the corner frequency is inversely related to the audio input signal (Kimura discloses corner frequency varies from 20 Hz to 500 Hz (Col 4, line 13) based on level detection means (Col 6, lines 3-6); means for amplifying the output signal from the filter circuit (D/A); and a terminal for providing an amplified output signal (output of D/A).

Kimura does not disclose an R.M.S. detector for providing an R.M.S. voltage from the input audio signal with a range of frequencies where a lower portion of the range includes a bass content. Muterspaugh discloses an RMS detector (Figure 1, reference 34) which provides a control element for reference 20. It would be known to one in the art that an RMS detector could also be used as a method of detecting voltage level as shown by Muterspaugh. Therefore it would have been obvious to one skilled in the art at the time the invention was made to combine the level detector used by Kimura with a RMS detector disclosed by Muterspaugh in order to obtain an accurate reading of the voltage level.

14. Claims 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura (US Patent 5,172,358) in view of Muterspaugh (US Patent 4,661,851) as applied to claim 22 above, in further view of Dodson et al. (US Patent 4,179,669).

Regarding Claim 24, Kimura in view of Muterspaugh discloses a circuit as stated apropos of claim 22 including a low pass filter (Kimura (16)) but do not disclose the use of light emitting device and light sensitive resistor. Dodson discloses an equalizing

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system which changes the equalization based on the power of the audio signal through a LED (32) and light sensitive resistor (25). Dodson discloses that the LED allows feedback to be proportional to the amplitude of the signal provided by amplifier 23 (Col. 3, lines 23-27). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a LED in order to provide a proportional feedback signal to the equalization circuit.

Regarding Claim 25, Dodson further discloses the amount of boost proportional to the value of the light sensitive resistor (Col. 3, lines 23-27).

Allowable Subject Matter

15. Claims 17 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

16. Claims 28-30 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.


Conclusion

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Justin Michalski whose telephone number is (703)305-5598. The examiner can normally be reached on 8 Hours, 5 day/week.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Isen can be reached on (703)305-4386. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JIM


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PRIMARY EXAMINER